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THE AMOS EATON HERBARIUM

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In 1937 Mr. Gustafson[1] published an account of what he took to represent an Amos Eaton herbarium. It is reported that this small collection, now preserved at the Rensselaer Polytechnic Institute, Troy, New York, contains 111 specimens labeled in Eaton's handwriting. That this book of specimens now at Troy, where Eaton taught, was thought to have been picked up in a southern farmhouse by a Union soldier in the Civil War strengthens the idea as to the possibility or even the probability that this collection, which I have not seen, actually represents a student's herbarium corresponding to that of Mr. David L. Coe. Dr. Barnhart[2] has discussed the Coe herbarium which was taken by Mr. Coe to Ohio soon after 1818, and over a century later was discarded by one of his descendants in Ashland, Oregon. Mr. Coe was one of Eaton's students at Williams College, in the class that actually financed the publication of the first edition of the latter's Manual in 1817.

In searching for the numerous unlisted technical names for plants, some deliberately, some inadvertently originated by Eaton in the eight editions of his Manual between 1817 and 1840, certain problems as to the identity of individual species arose. While most of the approximately forty new species actually published by Eaton can be placed from his descriptions, which are mostly short or very short, in some cases it seemed to be desirable

[1] **Gustafton, A. H.** A Note on Amos Eaton's Herbarium. Rhodora **39**: 153–155. 1937.

[2] **Barnhart, J. H.** A Century-Old American Herbarium. Jour. N. Y. Bot. Gard. **35**: 241–245. 1934.

to examine specimens that Eaton might have had before him, could they be located. Accordingly a serious attempt was made to locate Amos Eaton's herbarium in the hope that it might contain his actual types. Nothing further developed at Williamstown, Troy, or Albany, and then, because of Eaton's connections with Yale University, it occurred to me that something might be available there. This proved to be the case. The Amos Eaton herbarium, now the property of one of his great-grandsons, Mr. George Eaton, is deposited in the Osborn Botanical Laboratory, Yale University, and through the courtesy of Dr. E. W. Sinnott it was made available to me for examination.

The first Eaton herbarium consists of four books nine by eleven inches and about two inches thick, each with about ninety sheets. On the back of each is the lettering "A. Eaton's Herbarium" and on the fly leaf of one volume is the signature of Sara C. Eaton, followed by the statement "from Rens. Institute, Troy, N. Y." This herbarium originally contained 1237 small specimens, many of them mere scraps, but a few of the specimens have been destroyed or lost. In the herbarium are representatives of five species that Eaton described as new, either on his own account or for other botanists, these being *Xylosteum solonis* Eaton, *Sarracenia heterophylla* Eaton, *Polygonum natans* Eaton (*P. fluitans* Eaton), *Lonicera hirsuta* Eaton and *Hydnum chrysorhizum* Torr. ex Eaton. These are the only "types" that were located representing the forty species that he described as new either on his own account or for other botanists. Therefore the fact that the Eaton herbarium is finally located is merely of slight historical importance, largely because he apparently did not consider it necessary or even desirable to retain specimens representing genera or species that were described as new in the various editions of his Manual. Curiously there appear in the herbarium two specimens from Rafinesque which from the accompanying holographic descriptions of Rafinesque were collected at Fishkill, New York, both of which were considered by Rafinesque to be new, but which Eaton did not accept. Neither of the species was "new" at the time, but examination of these specimens enabled me to place two Rafinesque binomials that had appeared as *nomina nuda* in various papers published by that erratic botanist.

In Eaton's Manual, ed. 2, p. 5, 1818, he states that he then had representatives of about 1600 species in his herbarium. It seems to be clear that the specimens were at that time unmounted, and that the selected material was not mounted until after the third edition of the Manual appeared in 1822. While a few of the species that are described in the first or second edition of the Manual appear in the collection, such as *Xylosteum solonis* Eaton, *Lonicera hirsuta* Eaton, and *Hydnum chrysorhizum* Torr. ex Eaton, it is also to be noted that others that were not described until edition three appeared in 1822 also occur, namely, *Sarracenia heterophylla* Eaton and *Polygonum natans* Eaton.

The material that Eaton elected to preserve consists for the most part of mere snips, mostly several to many species mounted on a sheet, the arrangement being in accordance with the Linnaean classes. Apparently when the selected specimens were arranged for mounting, the names, in greatly abbreviated form, were penciled on the sheets, for in some cases the specimens in part cover these entries; later Eaton wrote the name in ink near each specimen. There are in general no notes, few localities are indicated, and no dates of collection other than an occasional indication of the month. The few localities that are given appear chiefly as N. H. = New Haven, A = Albany, W = Williamstown, etc. In most cases the species appear to be correctly named in accordance with the nomenclature of the time. There are usually three or four, sometimes six or more species mounted on the same small sheet, or in the case of the cellular cryptogams as many as twenty or more species on a single sheet. On the whole, apparently, this Eaton herbarium is exactly the type that he required his students to prepare, if we may judge from the extant herbarium of David L. Coe, mentioned above; except that in the Coe collection the specimens are very much better than are those in Eaton's own herbarium.

There is a second Amos Eaton herbarium at Yale University of which only one of the two books still exists. This covers classes I to X of the Linnaean system. The specimens are somewhat better than are those in the first and larger herbarium. There are 225 species in book one of this herbarium, many of them representing the same species as those in the first collection. In a few cases dates of collection are given, the latest being 1834.

All the specimens are labeled, the label taking the form of a slip of paper pasted across the lower end of the specimen, bearing the name, sometimes a few other data, and always figures referring to the generic names used in the last (1840) edition of the Manual. The handwriting on the labels is not that of Amos Eaton but may represent that of John Wright, the co-author of this edition. In the front of the book, however, is a written list of the contents of the two volumes, and this is in Eaton's handwriting. From this index it is evident that there were in book two (which apparently no longer exists) about 278 additional specimens in classes XI to XX. No Eaton types were located in this second herbarium.

It was at first thought that the Amos Eaton herbarium discussed by Gustafson, mentioned above, might represent the missing part of this second Eaton herbarium now at Yale University. This, however, cannot possibly be the case, judging from the data given by Mr. Gustafson. He inferred that perhaps Eaton has assembled large collections of botanical material in his travels, but I find no evidence in support of this idea. That Eaton did receive rather extensive collections from his numerous correspondents is evident, and he certainly had the opportunity, as did John Torrey and the somewhat later Asa Gray, of building up an important historical collection of botanical specimens, an opportunity that he did not grasp. Whether the material that he did receive was discarded by Eaton himself as valueless and not worthy of preservation, or whether it was discarded by someone else after Eaton's death, there seems to be no way of determining a century after the event.

It had been hoped that there might be located in the Eaton herbarium not only specimens of the twenty new species that Eaton himself named and described, but that also there might be present specimens representing approximately the same number of species named and described by Torrey, Hall, Aikin, Beck, Tracy, and Le Conte, but actually published by Eaton for these authors. Only one of the latter was located, and of the former the holotypes of only four of the twenty species involved.

Eaton never claimed to be a professional botanist. He was interested in botanical instruction and in popularizing the study of botany. His attitude was apparently always that of the

amateur rather than that of the professional botanist. Becuase of the very simplicity of his text, and because of the obscurity of publication of approximately 200 new names proposed by him, a remarkably high percentage of these new names have remained for a century or longer unlisted in our standard indices, and hence, for the most part entirely overlooked by modern botanists. Only about fifty of the two hundred new Eaton names have previously been listed, and in these entries there are approximately thirty-five corrections to be made, as Eaton actually published the names earlier than the current entries indicate. A special paper on these overlooked names will appear in a future issue of Bartonia.

Arnold Arboretum

Notes on New Hampshire Plants.—In their recent report, completing their consideration of the distribution of the *Gramineae* of New England, Bean et al.[1] specifically state that *Phragmites communis* Trin. var. *Berlandieri* (Fournier) Fern. has not been reported from New Hampshire. In the past two years I have twice collected this grass in Strafford County. However, not sufficient time has elapsed for these collections to have become available in herbaria. One of the new stations is an inland swamp in the township of Lee. There it grows amongst Alders and scattered specimens of *Rhus Vernix* L. and near a colony of *Rhamnus alnifolia* L'Hér. The second locality is in Durham, at the edge of a salt-marsh near the upper tidal limits of the Oyster River. The plants were observed there in August, 1945.

Lemna valdiviana Philippi, according to herbarium records, has been found previously in New Hampshire only in Rindge in Cheshire County. Apparently it has not been reported from Maine. A number of years ago, in rapidly flowing water of the Bellamy River in the township of Madbury, I collected an intertwining mass of vegetable matter which was finally traced to this species. The somewhat falcate fronds, each with one evident vein, characterize the species.

Gerardia virginica (L.) BSP., the Downy False Foxglove, gets into New Hampshire in the Connecticut Valley in Hinsdale and

[1] Preliminary Lists of New England Plants, XXIV. Rhodora XLVIII, 17–27 (1946